

CLAIMS

What is claimed is:

1. A method of delivering an agent of interest to a luminal surface of vascular endothelium in a tissue-specific manner, comprising the steps of:
 - a) selecting an agent of interest that binds to and localizes to a component of a microdomain of the luminal surface of the vascular endothelium upon contact with the luminal surface, wherein the component of the microdomain to which the agent binds and localizes is tissue specific, and wherein the microdomain is selected from the group consisting of: caveolae, G domains, and caveolae associated with G domains; and
 - b) contacting the luminal surface of vasculature with the agent of interest, thereby delivering the agent to the luminal surface of the vascular endothelium in a tissue-specific manner.
2. A method of delivering an agent of interest into and/or across a luminal surface of vascular endothelium in a tissue-specific manner, comprising the steps of:
 - a) selecting an agent of interest that binds to and localizes to a component of a microdomain of the luminal surface of the vascular endothelium upon contact with the luminal surface, wherein the component of the microdomain to which the agent binds and localizes is tissue specific, and wherein the microdomain is selected from the group consisting of: caveolae, G domains, and caveolae associated with G domains; and
 - b) contacting the luminal surface of vasculature with the agent of interest, thereby delivering the agent into and/or across the luminal surface of the vascular endothelium in a tissue-specific manner.

3. A method of delivering an agent of interest across a luminal surface of vascular endothelium and from one side of an underlying cell to another side in a tissue-specific manner, comprising the steps of:
 - a) selecting an agent of interest that binds to and localizes to a component of a microdomain of the luminal surface of the vascular endothelium upon contact with the luminal surface, wherein the component of the microdomain to which the agent binds and localizes is tissue specific, and wherein the microdomain is selected from the group consisting of: caveolae, G domains, and caveolae associated with G domains; and
 - b) contacting the luminal surface of vasculature with the agent of interest, thereby delivering the agent across the luminal surface of the vascular endothelium and from one side of an underlying cell to another side in a tissue-specific manner.
4. The method of Claim 3, wherein the agent of interest comprises an active agent component and a transport agent component, wherein the transport agent component binds to and localizes to a component of the microdomain of the luminal surface of the vascular endothelium.
5. The method of claim 4, wherein the tissue is malignant.
6. The method of claim 4, wherein the agent of interest comprises a nucleic acid.
7. The method of claim 4, wherein the agent of interest comprises an immunotoxin.
8. The method of claim 4, wherein the active agent component is selected from the group consisting of: an antibody, a nucleic acid, a drug, a toxin, and a diagnostic agent.

9. The method of claim 4, wherein the transport agent component binds to and localizes to a molecule present on the luminal surface of a microdomain of the luminal surface of the vascular endothelium.
10. The method of claim 4, wherein the active agent component and the transport agent component are the same component.
11. The method of claim 10, wherein the active agent component is selected from the group consisting of: an antibody, a drug, a toxin, and a diagnostic agent.
12. The method of claim 4, wherein the transport agent component is selected from the group consisting of: an antibody, a peptide, an inactivated virus, a receptor, a ligand and a nucleic acid.
13. The method of claim 12, wherein the transport agent component is an antibody.
14. The method of claim 4, wherein the tissue is selected from the group consisting of: vascular, pulmonary, cardiac, cerebral, nephric, hepatic, endocrinous and intestinal tissue.
15. The method of claim 14, wherein the vascular endothelium of a tissue is vascular endothelium of cardiac tissue, and wherein the agent of interest comprises a selective stimulant.
16. The method of claim 14, wherein the vascular endothelium of a tissue is vascular endothelium of a blood vessel, and wherein the agent of interest comprises an anticoagulant.

17. The method of claim 14, wherein the vascular endothelium of a tissue is vascular endothelium of a blood vessel, and wherein the agent of interest comprises a nucleic acid encoding an anticoagulant.

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